

We claim:

1. A chimeric non-immunoglobulin binding polypeptide comprising an immunoglobulin-like domain containing scaffold having two or more solvent exposed loops containing a different CDR from a parent antibody inserted into each of said two or more loops and exhibiting selective binding activity toward a ligand bound by said parent antibody.
2. The chimeric non-immunoglobulin binding polypeptide of claim 1, wherein said immunoglobulin-like domain containing scaffold comprises a ThyOx family polypeptide, or a functional fragment thereof.
3. The chimeric non-immunoglobulin binding polypeptide of claim 2, wherein said ThyOx family polypeptide is selected from the group of Ox2, CD7, Ox2-like protein and Ox2 homolog, or a functional fragment thereof.
4. The chimeric non-immunoglobulin binding polypeptide of claim 2, wherein said ThyOx family polypeptide comprises Thy-1, or a functional fragment thereof.
5. The chimeric non-immunoglobulin binding polypeptide of claim 4, wherein said two or more solvent exposed loops comprise amino acid residues 47-51, 67-98, 25 67-98 (Δ 81-96) or 130-140 of Thy-1.
6. The chimeric non-immunoglobulin binding polypeptide of claim 1, wherein said immunoglobulin-like

domain containing scaffold is selected from the group of T cell receptor, CD8, CD4, CD2, class I MHC, class II MHC, CD1, cytokine receptor, GCSF receptor, GMCSF receptor, hormone receptor, growth hormone receptor, 5 erythropoietin receptor, interferon receptor, interferon gamma receptor, prolactin receptor, NCAM, VCAM, ICAM, N-caderin, E-caderin, fibronectin, tenascin, and I-set containing domain polypeptides, or a functional fragment thereof.

10 7. The chimeric non-immunoglobulin binding polypeptide of claim 1, further comprising at least three solvent exposed loops.

15 8. The chimeric non-immunoglobulin binding polypeptide of claim 7, further comprising a different CDR from said parent antibody inserted into said at least three solvent exposed loops.

20 9. The chimeric non-immunoglobulin binding polypeptide of claim 1, wherein said different CDRs from said parent antibody are selected from CDR1, CDR2 and CDR3.

10. A chimeric non-immunoglobulin binding polypeptide comprising an immunoglobulin-like domain containing scaffold having less than about 20% sequence identity to a human immunoglobulin variable region 25 framework domain, said immunoglobulin-like domain containing scaffold having two or more altered solvent exposed loops and exhibiting selective binding activity toward a disparate ligand.

11. The chimeric non-immunoglobulin binding polypeptide of claim 10, wherein said immunoglobulin-like domain containing scaffold comprises a ThyOx family polypeptide, or a functional fragment thereof.

5 12. The non-immunoglobulin binding polypeptide of claim 11, wherein said ThyOx family polypeptide is selected from the group of Ox2, CD7, Ox2-like protein and Ox2 homolog, or a functional fragment thereof.

10 13. The chimeric non-immunoglobulin binding polypeptide of claim 11, wherein said ThyOx family polypeptide comprises Thy-1, or a functional fragment thereof.

15 14. The chimeric non-immunoglobulin binding polypeptide of claim 13, wherein said two or more altered solvent exposed loops comprise amino acid residues 47-51, 67-98, 67-98(Δ 81-96) or 130-140 of Thy-1.

20 15. The chimeric non-immunoglobulin binding polypeptide of claim 10, wherein said immunoglobulin-like domain containing scaffold is selected from the group of T cell receptor, CD8, CD4, CD2, class I MHC, class II MHC, CD1, cytokine receptor, GCSF receptor, GMCSF receptor, hormone receptor, growth hormone receptor, erythropoietin receptor, interferon receptor, interferon gamma receptor, prolactin receptor, NCAM, VCAM, ICAM, N-25 caderin, E-caderin, fibronectin, tenascin, and I-set containing domain polypeptides, or a functional fragment thereof.

16. The chimeric non-immunoglobulin binding polypeptide of claim 10, wherein said two or more altered solvent exposed loops further comprise a ligand binding domain from a parent binding polypeptide.

5 17. The chimeric non-immunoglobulin binding polypeptide of claim 16, wherein said parent binding polypeptide is selected from the group of EPO, 8E5 and GLP.

10 18. The chimeric non-immunoglobulin binding polypeptide of claim 16, wherein said disparate ligand comprises a ligand bound by said parent polypeptide.

15 19. The chimeric non-immunoglobulin binding polypeptide of claim 10, wherein said two or more altered solvent exposed loops further comprise different CDR region sequences from a parent antibody.

20. The chimeric non-immunoglobulin binding polypeptide of claim 10, further comprising at least three altered solvent exposed loops.

20 21. The chimeric non-immunoglobulin binding polypeptide of claim 20, wherein said at least three altered solvent exposed loops further comprise a different CDR region sequence from a parent antibody.

25 22. The chimeric non-immunoglobulin binding polypeptide of claims 20 or 21, wherein said CDR region sequences from said parent antibody are selected from CDR1, CDR2 and CDR3.

23. A chimeric ThyOx binding polypeptide comprising one or more altered immunoglobulin-like domain loop regions of a ThyOx family polypeptide and having selective binding activity toward a non-ThyOx ligand.

5 24. The chimeric ThyOx binding polypeptide of claim 23, wherein said ThyOx family polypeptide is selected from the group of Ox2, CD7, Ox2-like protein and Ox2 homolog, or a functional fragment thereof.

10 25. The chimeric ThyOx binding polypeptide of claim 23, wherein said ThyOx family polypeptide comprises Thy-1, or a functional fragment thereof.

15 26. The chimeric ThyOx binding polypeptide of claim 25, wherein said one or more altered immunoglobulin-like domain loop regions comprise amino acid residues 47-51, 67-98, 67-98(Δ 81-96) or 130-140 of Thy-1.

20 27. The chimeric ThyOx binding polypeptide of claim 23, wherein said one or more altered immunoglobulin-like domain loop regions further comprise a ligand binding domain from a parent binding polypeptide.

28. The chimeric ThyOx binding polypeptide of claim 27, wherein said parent binding polypeptide is selected from the group of EPO, 8E5 and GLP.

25 29. The chimeric ThyOx binding polypeptide of claim 27, wherein said non-ThyOx ligand comprises a ligand bound by said parent polypeptide.

30. The chimeric ThyOx binding polypeptide of claim 23, wherein said one or more altered immunoglobulin-like domain loop regions further comprise different CDR region sequences from a parent antibody.

5 31. The chimeric ThyOx binding polypeptide of claim 23, further comprising at least three altered immunoglobulin-like domain loop regionss.

10 32. The chimeric ThyOx binding polypeptide of claim 31, wherein said at least three altered immunoglobulin-like loop regions further comprise a. different CDR region sequence from a parent antibody.

15 33. The chimeric ThyOx binding polypeptide of claims 30 or 32, wherein said CDR region sequences from said parent antibody are selected from CDR1, CDR2 and CDR3.

34. The chimeric ThyOx binding polypeptide of claim 33, wherein said non-ThyOx ligand comprises a ligand bound by said parent antibody.

20 35. A chimeric ThyOx carrier polypeptide comprising a at least one immunoglobulin-like domain containing scaffold derived from a ThyOx family polypeptide, and a heterologous binding polypeptide exhibiting selective binding activity toward a non-ThyOx ligand.

25 36. The chimeric ThyOx binding polypeptide of claim 35, wherein said ThyOx family polypeptide is

selected from the group of Ox2, DD7, Ox2-like protein and Ox2 homolog, or a functional fragment thereof.

37. The chimeric ThyOx binding polypeptide of claim 35, wherein said ThyOx family polypeptide comprises 5 Thy-1, or a functional fragment thereof.

38. The chimeric ThyOx binding polypeptide of claim 35, wherein said heterologous binding polypeptide comprises glucagon-like peptide, erythropoietin, an antibody variable region, or a functional fragment 10 thereof.

39. The chimeric ThyOx binding polypeptide of claim 35, wherein said non-ThyOx ligand comprises a ligand bound by said heterologous binding polypeptide.

40. A nucleic acid encoding a non-15 immunoglobulin or ThyOx binding polypeptide of claims 1, 10, 23 or 35.